

## ABSTRACT OF THE DISCLOSURE

The present invention provides a memory cell having a variable resistor as a memory element, and also provides a memory device comprising the memory cells. The variable resistor is made of a thin-film material (for example, PCMO) or the like having a perovskite structure. So the memory cell can operate at a low voltage and can be highly integrated. The memory cell MC is formed of a combination of a current controlling device and a variable resistor. A field-effect transistor, diode or bipolar transistor is used as the current controlling device. The current controlling device is connected in series with the current path of the variable resistor so as to control a current flowing through the variable resistor.